

WHAT IS CLAIMED IS:

1. A pointing device comprising:

5 an illumination system that illuminates a surface over which said pointing device moves, said illumination system generating a light level determined by an illumination control signal;

a camera system that records a plurality of images of said illuminated surface; and

10 a controller that records first and second images taken by said camera at different times and determines a displacement indicative of the direction and distance said positioning device moved between said two different times, said controller further generating said illumination control signal, said illumination control signal depending on at least one of said
15 images recorded by said camera system.

2. The pointing device of Claim 1 wherein said surface is characterized by a reflectivity and wherein said light level generated by said illumination system is inversely related to said reflectivity.

20 3. The pointing device of Claim 1 wherein said illumination system comprises a laser and variable current circuit that adjusts the current flowing through said laser in response to said illumination control signal.

25 4. The pointing device of Claim 1 wherein said illumination system comprises an LED and variable current circuit that adjusts the current flowing through said LED in response to said illumination control signal.

30 5. The pointing device of Claim 4 wherein said variable current circuit comprises a current mirror for controlling current in said LED.

6. The pointing device of Claim 1 wherein said illumination system has a first illumination setting for providing a first level of accuracy in said determined displacement

and a second illumination setting for providing a second level of accuracy that is greater than said first level of accuracy, said second illumination setting requiring more power than said first illumination setting, said illumination setting being determined by a control signal supplied by a user of said pointing device.

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7. A method for determining the displacement of said pointing device on a surface, said method comprising:

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illuminating said surface with a light level determined by an illumination control signal;

recording a plurality of images of said illuminated surface; and

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comparing first and second images taken at different times to determine a displacement indicative of the direction and distance said positioning device moved between said two different times, said illumination control signal depending on at least one of said recorded images.

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8. The method of Claim 7 wherein said surface is characterized by a reflectivity and wherein said light level is inversely related to said reflectivity.

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9. The method of Claim 7 wherein said surface is illuminated by an LED having a bias current determined by a variable current circuit that adjusts the current flowing through said LED in response to said illumination control signal.

10. The method of Claim 9 wherein said variable current circuit comprises a current mirror for controlling current in said LED.

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11. The method of Claim 7 wherein said light level is also determined by a control signal that is input by a user of said pointing device.